



1300 Pennsylvania Avenue NW, Suite 190-322, Washington, DC 20004

March 29, 2017

Marlene H. Dortch Secretary
Federal Communications Commission
445 12th Street, SW Washington, DC 20554

Re: GN Docket No. 13-5 - Technology Transition Trials

Dear Ms. Dortch:

On March 27, 2017, in connection with the above referenced proceeding, I (Daniel Berninger) met with Chairman Ajit Pai and Jay Schwarz in conjunction with my role as founder of the Voice Communication Exchange Committee ("VCXC"). The discussion addressed the proposal in VCXC's Petition¹ for Notice of Inquiry on the Migration to HD Voice to make high definition voice the primary objective of the IP transition. I nominated myself and offered to serve as Chairman of an Advisory Committee for Advanced Telecommunications Services convened to connect the technology dots. The proposal creates an advanced services complement to the Broadband Deployment Advisory Council and follows the model of the Advisory Committee on Advanced Television Service Chaired by Richard Wiley to lead the HDTV transition.

The VCXC Petition includes a detailed rationale pointing to HD voice as the primary benefit and upgrade for the communicating public associated with the IP transition. Highlighting HD voice as purpose does not increase the cost or complexity of the IP transition. All the underlying deployment steps remain unchanged. The current generation of network equipment supports HD voice at no extra cost. A successful HD voice migration involves defining a common implementation. The HDTV transition involved multiple motivations, but the emphasis on benefits of high definition proved essential to success. I reminded Chairman Pai of the interest in HD voice generated by the demonstration VCXC organized for FCC staff at Technology Experience Center in December 2013.

The public did not demand HDTV as the HDTV television transition pursued by the first ACATS arose from entrepreneur initiative and conditions in the television industry. The cause of the HD voice migration similarly starts as an entrepreneurial and industry initiative, but public enthusiasm will prove the driving force once experience with HD voice starts to spread. The New York Times reported President Trump's enthusiastic reaction to a first experience with HD voice at the White House in a January 25, 2017 article² "A Homebody Finds the Ultimate Home Office". The article quotes President Trump's reaction as "These are the most beautiful phones I've ever used in my life" and "The words just explode in the air." Telephone voice quality available to the larger public remains unimproved since Franklin D Roosevelt signed the Communication Act of 1934 into law. The HD voice migration

1 See VCXC Petition for Notice of Inquiry on the migration to HD Voice (filed February 25, 2014). On March 7, 2014, VCXC's Petition was associated with GN Docket No. 13-5. On May 23 2014, the Commission releases the Petition for public comment. The Petition may be found at <https://ecfsapi.fcc.gov/file/7521089152.pdf>

2 See New York Times, January 25, 2017 "A Homebody Finds the Ultimate Home Office" by Maggie Haberman available at <https://www.nytimes.com/2017/01/25/us/politics/president-trump-white-house.html>

upgrading vacuum tube era telephone voice quality ends 80-years of communication friction analogous to paving a dirt road.

The ACATS proposal in the VCXC Petition serves the purposes Chairman Pai identifies in an inaugural speech³ as a Commissioner on July 18, 2012 at Carnegie Mellon University - “Unlocking Investment and Innovation in the Digital Age: The Path to a 21st-Century FCC”. The “Digital Age” ambitions identified in the talk remain on hold five years later as the telecommunications industry continues to rely on the old circuit switched telephone network for voice services the new all-IP network make obsolete. The dual network status quo makes telephone conversations nearly unbearable, because forcing calls to traverse gateways between the old and new network further degrades call quality. The power consumption of the ancient technologies underlying the old telephone network adds billions to expenses passed along to the public in bills each month.

The VCXC Petition points to the benefits of including HD voice as a part of the E911 upgrade. HD voice to reduces the risk of misunderstanding and improve the ability to convey information likel to save lives. HD voice offers enormous benefits for the significant portion of the population with hearing impairments making standard definition telephones unusable. HD voice transforms the routine experience of a conference call, because standard definition conveys a mere 20% of available audio energy. Standard definition falls short of even AM radio fidelity. HD voice closes the gap between the experience of meeting in-person and a telephone call for business conversations and everyday social interactions. The Verizon experience with the residents of Fire Island suggests disaster for any attempt to proceed with the IP transition as merely preserving the customer experience status quo.

All the elements exist for the HD voice migration to enable HD voice for telephone numbers in the United States over three phases. A date certain of December 31, 2018 for phase one migrates the first third of telephone numbers. The remaining telephone numbers migrate in subsequent phases completing on December 31, 2019 and December 31, 2020. The broad adoption of smart phones as well as consumer and enterprise VoIP mean the vast majority of end user devices already support HD voice. The migration process works by enabling the infrastructure associate with specific telephone numbers. The decision of the communicating public to upgrade the remaining devices is opt-in.

President Trump and Chairman Pai's deregulation plans create the first opportunity for upgrading telephone voice quality. The technology obstacles voice quality disappeared a long time ago. The survival of an 80-year old technology in 2017 represents as much a surprise as finding a picture of FDR holding an iPhone. Everyone understood in 1934 the multiplier effect benefits of “paved” versus “dirt” roads the HD voice migration offers. The original voice quality studies at Bell Laboratories in the 1930's by Harvey Fletcher establishing standard definition voice recognized the imperative of telephone calls supporting the full range of human speech and hearing. Harvey Fletcher even made the case directly to the AT&T Board of Directors at the time. The failure to take the advice reflects technology reality at the time⁴. Only regulatory obstacles remain as the technology excuses for failing to upgrade telephone voice quality disappeared in 1948 with the invention of transistor at Bell Labs.

The survival of standard definition provides a case study for the ability of regulators and regulation to derail innovation. The usual expectation of progress requires a trial and error process revealing customer preference the government disrupts with regulations. Competitive advantage in a regulated market involves convincing regulators to grant favors or undermine competitors. The complete

3 See “Unlocking Investment and Innovation in the Digital Age: The Path to a 21st-Century FCC”, Commissioner Ajit Pai, July 18, 2012 available at https://apps.fcc.gov/edocs_public/attachmatch/DOC-315268A1.pdf

4 Dr. Fletcher's presentation and technology demonstration to the Board led to the invention of the electronic hearing aid.

disconnect between end user preference and the power struggle reality inside a bureaucracy defeats both innovation and the supposed purposes of regulation. The track record of the FCC responding to petitions by entrepreneurs like myself⁵ is dismal to nonexistent.

The transformation of the communication landscape by the Internet reflects the preservation of IP networks as a regulation free zone. The April 30, 1995 privatization of the Internet produced the 1000-fold expansion in value proposition the communicating public now enjoys. The 9.6Kbs dial-up modem became 10Mbps always on broadband and the routine smart phone data plan now surpasses the \$10,000 per month regulated services of 1995. The expansion of the value of telecommunications far exceeds all other sectors of the United States economy since 1995. Communication value - with the exception of still heavily regulated voice quality - improved as college education, healthcare, automobile insurance, gasoline, other basic commodities got more expensive in a parade of horrors.

The regulation imposed voice quality drought accounts for the competitive demise of the old telephone network after IP enabled and non-regulated alternatives started to arrived with privatization of IP networks in 1995. My early efforts to promote a HD voice⁶ migration in 2009 made good progress until the Obama administration imposed the old rules on the new network via the Open Internet Order on February 26, 2015. As Chairman Pai's objections in a dissent to the Order suggest, Chairman Wheeler applies twisted bureaucratic logic claiming "regulation" as the best way to preserve the benefits of "non-regulation". The former Chairman's legal team ignored technical reality and the 50-year history of the Internet to assert an equivalence between IP addresses and telephone numbers as the means to impose the analog pre-transistor rules. Regulation requires as primary objective preserving the status quo, because rule making and a changing technology reality do not mix.

Making the Internet subject to Title II of the Communication Act of 1934 promises to derail the unfolding wonders of the Internet as it did with telephone voice quality. Chairman Pai's support for restoring the non-regulated status of information services invites restarting the HD voice migration even as the Open Internet Order remains in place pending action by the Supreme Court. Convening an Advisory Committee on Advanced Telecommunications Service creates a forum to assemble a common HD voice implementation in parallel and even as legal proceedings continue. It serves the Chairman's stated plans to transform the agency from obstacle to facilitator of innovation. Ending the suffering under telephone voice quality recognized as inadequate 80-years ago serves the public interest and offers a terrific showcase for the benefits of Chairman Pai and President Trump's deregulation promise.

Pursuant to 47 C.F.R § 1.1206 of the Commission's rules, please add this ex parte to Docket No. 13-5.

Sincerely yours,



Daniel Berninger, founder, VCXC

cc:

Chairman, Ajit Pai

Jay Schwarz

5 See Declaration of Daniel Berninger GN Docket No. 14-28 available at <http://vcxc.org/documents/berningerdeclaration.pdf>

6 See "Phone calls are about to get the HD treatment" by Brian Fung, Washington Post, October 17, 2014 available at https://www.washingtonpost.com/news/the-switch/wp/2014/10/17/phone-calls-are-about-to-get-the-hd-treatment/?utm_term=.9c5b94c75cfd